

Claims

1. A semiconductor device comprising:

~~a semiconductor substrate;~~

at least an active region formed in the semiconductor substrate;  
a plurality of isolation regions for separating the active regions each other;

a surface insulating film formed on a surface of the active region of the semiconductor substrate; and

a conductive film formed on the surface insulating film, wherein the surface insulating film is formed relatively thin to work as an electric fuse.

2. The semiconductor device according to claim 1, further comprising:

a plurality of surface insulating films formed on a surface of the active region of the semiconductor substrate; said surface insulating films being formed in a different thickness each other; and

a plurality of conductive films formed on each of the surface insulating films;

wherein one of the surface insulating films having smaller thickness is used as an electric fuse.

3. A semiconductor device comprising:

a semiconductor substrate;

at least a trench formed in the semiconductor substrate;

a surface insulating film formed along a surface of the trench of the semiconductor substrate; and

a conductive film formed on the surface insulating film.

4. The semiconductor device according to claim 3, wherein the surface insulating film is formed relatively thin to be broken down

for forming an electric fuse.

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5. The semiconductor device according to claim 3, wherein the surface insulating film is formed relatively thin to work as a dielectric film for forming a capacitor.

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6. The semiconductor device according to claim 3, wherein a plurality of trenches are formed adjacently, and a surface insulating film and a conductive film are formed in each trench.

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7. The semiconductor device according to claim 6, wherein a plurality of trenches are formed adjacently in the active region, an etching stopper film is embedded in a selected one of the trenches, and a surface insulating film and a conductive film are formed in other trenches.